
**EAST
WEST BRT**
a feasibility study

MILWAUKEE COUNTY EAST-WEST BUS RAPID TRANSIT

Financial Plan

REVISION 1

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CONTENTS

- 1. PROJECT DESCRIPTION 1-1**
- 2. PROJECT SPONSORS 2-1**
 - 2.1 Milwaukee County 2-1
 - 2.1.1 Description 2-1
 - 2.1.2 Role 2-1
 - 2.2 Project Partners 2-2
 - 2.2.1 Cities of Milwaukee and Wauwatosa 2-2
 - 2.2.2 Milwaukee Regional Medical Center (MRMC) 2-2
 - 2.2.3 Wisconsin Department of Transportation (WisDOT) 2-2
 - 2.2.4 Southeastern Wisconsin Regional Planning Commission (SEWRPC) 2-3
 - 2.2.5 AECOM Team 2-3
- 3. FINANCIAL CRITERIA 3-1**
 - 3.1 Reasonable Plan 3-1
 - 3.1.1 Order of Magnitude Capital Costs 3-1
 - 3.1.2 Preliminary Capital Revenues 3-5
 - 3.2 East-West BRT Project Preliminary O&M Cost Estimate 3-8
 - 3.2.1 Methodology 3-8
 - 3.2.2 Data Sources 3-9
 - 3.2.3 BRT O&M Cost Model 3-11
 - 3.2.4 Summary of Results 3-14
 - 3.3 Reasonably Good Financial Condition 3-15
 - 3.3.1 Positive Cash Flow and Reasonable Current Ratio 3-15
 - 3.3.2 No Material Findings 3-17
 - 3.4 Bond Ratings 3-17
- 4. RATING REQUEST 4-1**

FIGURES

Figure 1-1: East-West Study Corridor..... 1-1

TABLES

Table 3-1: Professional Services Costs..... 3-3

Table 3-2: Annual Inflation Rates 3-4

Table 3-3: Estimated Capital Costs (FY 2016 \$ and YOES\$ in millions) 3-4

Table 3-4: Preliminary Capital Funding Approach (YOE \$, in millions)..... 3-5

Table 3-5: MCTS Bus O&M Unit Costs (in 2016 dollars)..... 3-11

Table 3-6: BRT O&M Unit Costs (in 2016 dollars)..... 3-13

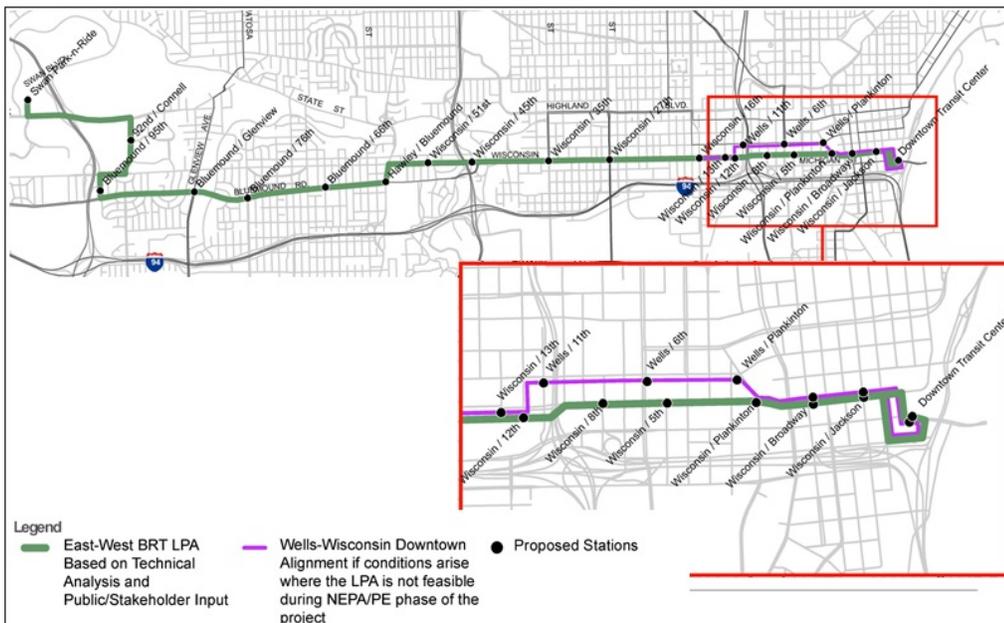
Table 3-7: Incremental O&M Cost Estimates (in 2016 dollars)..... 3-14

Table 3-8: Audited Financial Statements (CAFRs) (amounts in \$000) 3-16

1. PROJECT DESCRIPTION

Milwaukee County and its partners have initiated Project Development to evaluate and design a transit investment in the nine-mile East-West Corridor connecting major employment and activity centers between downtown Milwaukee, the Milwaukee Regional Medical Center (MRMC), and Milwaukee County Research Park (MCRP). Completing the Project Development phase is a first step towards applying for funding through the Federal Transit Administration (FTA) Small Starts program. The East-West Corridor locally preferred alternative (LPA) is a bus rapid transit (BRT) route that will run along Wisconsin Avenue and Bluemound Road from the Downtown Transit Center in Milwaukee through the Milwaukee Regional Medical Center in Wauwatosa to the Swan Boulevard park-and-ride. While the LPA (East-West BRT Project) is routed along Wisconsin Avenue in downtown Milwaukee, a hybrid Wells Street/Wisconsin Avenue alignment will be carried forward into the next project phase as a backup alternative if it is determined that serious operational or infrastructure issues would occur because of the BRT along Wisconsin Avenue (Figure 1-1).

Figure 1-1: East-West BRT Project



2. PROJECT SPONSORS

The Project is sponsored by Milwaukee County (the owner of the Milwaukee County Transit System [MCTS]), in partnership with the Southeastern Wisconsin Regional Planning Commission (SEWRPC) (the Metropolitan Planning Organization for the Milwaukee urbanized area), the Wisconsin Department of Transportation (WisDOT), the City of Milwaukee, the City of Wauwatosa, and MRMC. In addition, MCTS has retained a consultant team led by AECOM to evaluate transit alternatives in the corridor and to assist the county and its partners in fulfilling the requirements of the capital grant application process. Each of the project partners will have the following roles and responsibilities.

2.1 Milwaukee County

2.1.1 Description

Milwaukee County is in the state of Wisconsin. As of the 2010 census, the population was 947,735 and was estimated to be 956,406 in 2014. It is the most populous county in Wisconsin and the 45th most populous in the United States. Its county seat is Milwaukee, which is also the most populous city in the state. The county was created in 1834 as part of Michigan Territory and organized the following year.

In 2010 the population density was 3,932 people per square mile. The racial makeup of the county was 60.6 percent White, 26.8 percent Black or African American, 0.7 percent Native American, 3.4 percent Asian, 0.003 percent Pacific Islander, 5.4 percent from other races, and 3.0 percent from two or more races. 13.3 percent of the population were Hispanic or Latino of any race.

2.1.2 Role

As the project sponsor, Milwaukee County, its Department of Transportation (MCDOT), and its quasi-governmental instrumentality Milwaukee Transport Services, Inc. (MTS), which manages and operates MCTS, are responsible for the overall management of the Project and

the coordination of the various partners involved in the Project. This includes final responsibility for the technical analyses, public involvement, project design, preliminary engineering, and documentation currently occurring and that will occur under Project Development—including the completion of the environmental review process and providing FTA with sufficient information to develop a project rating.

In 2014 MCTS provided 1.4 million bus service hours covering 17.5 million service miles with a fleet of 390 40-foot, low floor, diesel buses whose average fleet age was 7 years. Ridership on fixed route services was 40.0 million and 569,400 on paratransit.

2.2 Project Partners

2.2.1 Cities of Milwaukee and Wauwatosa

The cities own and maintain a significant portion of the right-of-way on which the Project would operate, and therefore are key partners in the Project for discussions regarding the allocation of roadway space to transit and improvements in traffic signal technology. In addition, the cities' elected officials and staff play a key role in informing the public about the Project and providing public input to the project team.

2.2.2 Milwaukee Regional Medical Center (MRMC)

MRMC's six member organizations—Children's Hospital of Wisconsin, Froedtert Health, Medical College of Wisconsin, BloodCenter of Wisconsin, Curative Care Network, and Milwaukee County's Behavioral Health Division—employ more than 16,000 people at the western terminus of the Project. As such, MRMC has been and will be heavily involved in the Project, including coordinating the implementation of the Project with their campus master plan, which is under development.

2.2.3 Wisconsin Department of Transportation (WisDOT)

WisDOT is partnering with Milwaukee County to coordinate the implementation of this Project with other transportation investments WisDOT is making in this corridor, including the reconstruction of I-94 from North 70th Street to North 16th Street, which is anticipated to be initiated in 2019. WisDOT is anticipated to be a project funding partner.

2.2.4 Southeastern Wisconsin Regional Planning Commission (SEWRPC)

SEWRPC is assisting Milwaukee County and the other partners with technical analyses, and will be responsible for ensuring that the LPA is included in the fiscally-constrained metropolitan transportation plan.

2.2.5 AECOM Team

MCTS retained AECOM to complete the feasibility study and conceptual design and to provide technical and managerial expertise for preparing the request to enter Project Development and the National Environmental Policy Act (NEPA) class of action determination process.

3. FINANCIAL CRITERIA

The purpose of this section is to demonstrate that Milwaukee County, the sponsor, meets the criteria established by FTA for a highly simplified financial evaluation. The project sponsor must demonstrate the following:

- A. “A reasonable plan to secure funding for the local share of capital costs or sufficient available funds for the local share;
- B. The additional operating and maintenance cost to the agency of the proposed Small Starts project is less than five percent of the project sponsor’s current year approved operating budget; and
- C. The project sponsor is in reasonably good financial condition, as demonstrated by the past three years’ audited financial statements indicating a positive cash flow over the period, a reasonable current ratio, and no material findings.”¹

3.1 Reasonable Plan

3.1.1 Order of Magnitude Capital Costs

At present, three capital cost estimates are being considered. The different scenarios vary in guideway type (i.e., mixed traffic, dedicated curb lane, dedicated center lane). Through the NEPA process a more detailed examination of the potential impacts of the alternatives will determine where along the alignment the BRT will operate in mixed traffic or dedicated lanes, as it is unlikely that either mixed traffic or dedicated lanes will be selected for the entire alignment. The range by guideway type is \$41.9 million to \$47.9 million (2016 dollars). For the purposes of this discussion and to be conservative, the high cost, \$47.9 million, center-running scenario is utilized to demonstrate that Milwaukee County’s funding plan will accommodate the highest cost alternative.

¹ Final Interim Policy Guidance, Federal Transit Administration, Capital Investment Grant Program – June 2016.

The order of magnitude cost estimate was developed using FTA's Standard Cost Categories (SCC) in anticipation of a future Small Starts grant application. Additionally, the capital cost estimates for categories 10 through 50 include a 30 percent allocated contingency. This level of contingency allows for potential future fluctuations in materials and labor costs during construction. Further, a 5 percent allocated contingency is included for the vehicle cost estimate (cost category 70). A brief description of each cost category is provided below.

- **Guideway Elements (SCC 10):** Guideway elements typically include reconstruction of an existing roadway to allow for dedicated transit lanes. Work is from right-of-way to right-of-way to accommodate the dedicated transit lane, vehicular thru/turn lanes, and pedestrian access. While no costs are currently shown, at this stage of advanced conceptual engineering, costs for this category are combined and contained in other cost categories, primarily Sitework and Special Conditions (SCC 40).
- **Stations, Stops, Terminals, Intermodal (SCC 20):** This category includes costs for 11 curbside-loading BRT platforms, 12 median single-side loading platforms, and 8 oversized platforms for both direction or end of line stations.
- **Support Facilities: Yards, Shops, Admin. Bldgs. (SCC 30):** No costs are shown for the maintenance facilities as MCTS has capacity at its existing maintenance facilities to accommodate the vehicles required to operating the East-West BRT.
- **Sitework and Special Conditions (SCC 40):** This category includes estimated costs for all other construction activities that are not accounted for in SCCs 10, 20, and 30, such as the following:
 - Raised concrete median (square foot)
 - Utility relocation stations (each)
 - Concrete curb/gutter (linear foot)
- **Systems (SCC 50):** This category includes costs for traffic signals, communications systems, central control hardware and software, and automated fare collection. Unit cost line items include the following:
 - Traffic signals (each)
 - Communications – fiber optic (linear foot)
 - Ticket vending machines (each)
- **ROW, Land, Existing Improvements (SCC 60):** This category includes allowances for acquisition of right-of-way needed for transit stop platforms, roadway widening, and park-and-ride lots. No right-of-way acquisition is anticipated for this project.
- **Vehicles (SCC 70):** This estimate reflects the preliminary operating plan results, which identified the need for twelve 40-foot hybrid electric buses and spare parts for the East-

West BRT Project. Based on the preliminary operating plan, 10 peak vehicles would be needed. The capital cost estimate includes the purchase of two spare vehicles.

- **Professional Services (SCC 80):** This category includes estimated costs for professional services “soft costs” that are associated with implementing major fixed guideway projects. Estimates for the various professional services required to implement a major fixed guideway project are summarized in Table 3-1. As shown in the table, these costs are estimated based on a percentage of the East-West BRT Project’s direct costs (SCC 10 through SCC 50) and total 30.0 percent.

Table 3-1: Professional Services Costs

FTA SCC	Description	Percentage of Direct Cost
80.01	Project Development	12%
80.02	Engineering	N/A
80.03	Project Management for Design and Construction	7%
80.04	Construction Administration & Management	6%
80.05	Professional Liability and other Non-Construction Insurance	2%
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	1%
80.07	Surveys, Testing, Investigation, Inspection	1%
80.08	Start up	1%
Total		30%

- **Unallocated Contingency (SCC 90):** All contingency amounts are allocated to the SCC categories above except Professional Services (SCC 80).
- **Finance Charges (SCC 100):** Financial costs have not been included at this time as they will be dependent on availability and timing of federal funding.

The capital cost estimate for the East-West BRT Project was developed in current year (2016) dollars and projected to year of expenditure (YOE) dollars based on a conceptual project implementation schedule and annual inflation factors. Table 3-2 summarizes the annual inflation factor assumptions, which reflects a 3.5 percent annual growth rate between 2016 and YOE. As the East-West BRT Project moves through the Project Development process, an updated implementation schedule will be prepared that will result in revised annual costs for each SCC code.

Table 3-2: Annual Inflation Rates

Fiscal Year	Inflation Factor	Compound Growth Rate
2016	-	1
2017	0.035	1.035
2018	0.035	1.071
2019	0.035	1.109
2020	0.035	1.148

Table 3-3 summarizes the Project’s capital costs in the FTA SCC format in 2016 dollars and in YOE dollars. As shown in the table, based on the conceptual implementation schedule and annual inflation factor assumptions, the order of magnitude capital cost of the East-West BRT Project is \$47.9 million in FY 2016 dollars and \$51.9 million in YOE dollars.

Table 3-3: Estimated Capital Costs (FY 2016 \$ and YOE \$ in millions)

SCC #	Description	FY 2016 \$	YOE \$
10	Guideway & Track Elements	\$-	\$-
20	Stations, Stops, Terminals, Intermodal	\$10.4	\$11.3
30	Support Facilities: Yards, Shops, Admin. Bldgs	\$-	\$-
40	Sitework & Special Conditions	\$6.1	\$6.6
50	Systems	\$14.4	\$15.7
60	Row, Land, Existing Improvements	\$-	\$-
70	Vehicles	\$9.8	\$10.6
80	Professional Services	\$7.1	\$7.6
90	Unallocated Contingency	\$-	\$-
100	Finance Costs	\$-	\$-
	Project Total	\$47.9	\$51.9

Note: Summation of categories may not match total due to rounding.

3.1.2 Preliminary Capital Revenues

Table 3-4 summarizes the preliminary funding levels from the revenue sources currently being considered for the East-West BRT Project. These sources include FTA Small Starts funds, other FTA funds, and local matching funds from WisDOT. In addition, a discussion of potential supplemental funding sources is provided. As the East-West BRT Project moves through the Small Starts Project Development process, Milwaukee County will finalize the preferred funding strategy.

Table 3-4: Preliminary Capital Funding Approach (YOE \$, in millions)

Federal Funds	Amount	Percentage	Status
5309 Capital Imp Grant	\$36.00	69%	Planned
5307 Urbanized Formula	\$2.19	4%	Committed
Total Federal	\$38.19	74%	
WisDOT	\$4.71	9%	Planned
Milwaukee County Bonding	\$1.225	2%	Committed
Milwaukee County Bonding	\$7.775	15%	Budgeted
Total Non-Federal	\$13.71	26%	
Project Costs YOE\$	\$51.90	100%	

Note: Summation of sources may not match total due to rounding.

Below is a summary of each the funding sources that will be utilized for the East-West BRT Project.

- Section 5309 Capital Investment Grant Program:** The East-West BRT Project is a corridor-based BRT project that represents a substantial investment in a critical corridor within the Cities of Milwaukee and Wauwatosa, Wisconsin. As such, Milwaukee County will request FTA Small Starts (Section 5309 Capital Investment Grant) funds to support implementation of the Project. The preliminary funding approach assumes that Milwaukee County will request a Small Starts Grant Agreement of approximately 70 percent of the total project costs. Based on the order of magnitude cost estimate and conceptual implementation schedule, this would be a request of approximately \$36.0 million. The

actual level and timing will be negotiated with FTA as the East-West BRT Project moves through the Small Starts Project Development process.

- **Section 5307 Urban Area Formula Grant:** The Urbanized Area Formula Funding program (49 U.S.C. 5307) makes federal resources available to urbanized areas for transit capital and operating assistance and for transportation-related planning in urbanized areas. An urbanized area is a census-designated area with a population of 50,000 or more as determined by the U.S. Department of Commerce, Bureau of the Census. Milwaukee County plans to utilize \$7.6 million of its Section 5307 Urban Area Formula Grant Funds. The Milwaukee urbanized area received just over \$20.1 million in 5307 funds in FY 2016. Milwaukee County has committed \$2.19 million of 5307 funds to the East-West BRT for Project Development (Engineering and NEPA) in its 2017 budget.
- **WisDOT:** WisDOT has provided its support and stated that it is committed to assisting with financing the capital and operating cost of the BRT in the initial years of operation² as mitigation for the planned reconstruction of I-94.

Excerpt from I-94 East-West Final Environmental Impact Statement

3.9.6 Interstate Investment Effects on Transit

Currently, WisDOT is assisting other entities to ensure implementation of transit in the Milwaukee area. WisDOT provides a subsidy for the Amtrak Hiawatha train route between Milwaukee and Chicago and is upgrading the train shed at the Milwaukee Intermodal Station. Additionally, WisDOT has committed to financially participate in the planning process of Milwaukee County's BRT study connecting downtown Milwaukee with the Milwaukee Regional Medical Center. In addition, WisDOT has committed to using traffic mitigation funding before and during construction of the I-94 East-West corridor to invest in local intersection infrastructure. The intent of this investment is to incrementally implement BRT so that a sustainable BRT system is developed and available as a transportation option during I-94 construction.

WisDOT and SEWRPC are planning to amend the TIP to commit up to \$10 million dollars of state funds to construct the BRT on July 28, 2016. Current funding plan has identified \$4.71 million in funds from WisDOT towards the construction of the BRT, however, that figure is subject to change.

- **Milwaukee County Funds:** Milwaukee County has committed \$1,500,000 to transit improvements in this corridor, \$225,000 was used to fund the East-West BRT

² June 21, 2016 WisDOT letter of support

Feasibility Study, (the remaining funds were provided by SEWRPC \$300,000 and MCTS \$85,000). The County is planning to use remaining \$1,225,000 which was approved in 2015 for construction of the BRT. In addition, Milwaukee County is proposing to include and additional \$7,775,000 in general obligation bonds in FY 2017. The recommendation for the general obligation bonds was approved by the Milwaukee County Transportation, Public Works, and Transit Committee on July 13, 2016 and is expected to be approved by the Milwaukee County Finance and Audit Committee on July 21, 2016 and the Milwaukee County Board of Supervisors on July 28, 2016.

The general funds are derived from a combination of:

- Property taxes
- Sales taxes
- Charges for services
- Intergovernmental
- Other

The following provides an overview of the actions that would be required to commit Milwaukee County general funds, including bonds, to the East-West BRT Project.

- Milwaukee County annually adopts a 5-Year Capital Improvement Plan (CIP) and an annual capital budget. MCDOT will propose the East-West BRT Project for inclusion in FY 2017 CIP during the fall of 2016. The review process includes reviews and recommendations from the Capital Improvement Committee, a combination of county executives and elected and appointed officials. The annual capital budget provides annual appropriations for the projects in the CIP.
- Milwaukee County had traditionally used bond financing for the county’s share of capital projects. Since 2004, the Board-adopted policy goal has set a target of 20 percent of the Milwaukee County’s share to be cash funded from appropriate general fund sources.³
- Based on the annual budget process, the county issues taxable and tax-exempt debt for the non-cash portion of the county share. The most recent General Obligation bonds issued in November 2015 were rated “Aa2” by Moody’s, “AA” by Standard & Poors, and “AA+” by Fitch. These high ratings attest to the quality of Milwaukee County’s bonds, which facilitates easy access into the capital markets.⁴
- In addition, Milwaukee County is working with the Cities to identify “in kind” contribution based on roadway improvements in the jurisdictions where the BRT will operate.

³ 2016 Adopted Capital Improvement Budget

⁴ 2015 Series A Official Statement

Discussions with these entities are underway. Receipt of these commitments would reduce the amount of Milwaukee County general funds contributions to the local share and/or the FTA Section 5309 Capital Investment Grant funds, depending on the federal/non-federal mix of the funds that are provided for the East-West BRT Project.

3.2 East-West BRT Project Preliminary O&M Cost Estimate

3.2.1 Methodology

An operation and maintenance (O&M) cost spreadsheet model has been developed for this project to estimate the annual cost to operate, maintain, and administer a transit system for a given set of indicators. O&M costs are expressed as the annual total of employee earnings and fringe benefits, contract services, materials and supplies, utilities, and other day-to-day expenses incurred in the O&M of a transit system.

FTA believes a fully-allocated cost model is the best approach to O&M costing because it is (1) able to reflect cost differences by mode and service type, (2) structured based on actual operating experience, and (3) sensitive to future changes in cost factors. FTA has issued guidelines that specify the following methodology for calculating O&M costs:

- Estimate labor and materials needed to provide a specific level of service and then apply current unit costs to the estimated future labor and non-labor items
- Calculate costs based on operating characteristics by mode (e.g., BRT revenue-hours) rather than for all modes combined (e.g., system-wide passengers)
- Model each reported labor and non-labor expense separately to ensure that equations are mutually exclusive and cover all operating costs
- Model expense items as variable so that cost estimates will change with projected changes in service

A cost allocation model assumes that each operating expense incurred by a transit system is driven by a key supply variable such as revenue-hours, revenue-miles, or the number of vehicles operated during peak periods. Combining recent actual O&M costs with the quantity of relevant supply variables establishes unit costs and productivity ratios that can be applied to a different set of service indicators (such as projected future expansions or cut-backs). The result is an estimated annual O&M cost that is specific for a test scenario.

The structure of this project's O&M cost models is consistent with the spreadsheets presented in Chapter 4, Operating and Maintenance Costs, of the FTA's *Procedures and Technical Methods for Transit Project Planning* (Draft, Version 3). The models' data and calculations progress from the base year expense items and amounts on the left side of the spreadsheet, through the assignment of key supply variables as "cost drivers," to productivity and inflation, and end with the estimated incremental cost of a study alternative on the right side of the worksheet.

Two spreadsheet models were developed to estimate annual O&M costs for the East-West BRT study alternatives. An MCTS background bus O&M cost model was developed with recent actual expenses, system characteristics, and service statistics as reported to the National Transit Database (NTD) for the 2014 report year. The FY 2014 NTD data were the most current actual expenditure data available. FY 2015 data had not yet been submitted and accepted by NTD at the time of this study. A separate BRT O&M cost model was also developed, pivoting from the background bus cost model. The BRT model captures all of that mode's service-related expenses and costs unique to that mode (e.g., BRT facilities). The BRT cost model is based on the MCTS background bus model, supplemented with BRT-specific expense data from other locations in the United States planning or operating BRT service.

The demand response mode has not been modeled because these operations in the project corridor are not expected to change from one study alternative to another.

3.2.2 Data Sources

As noted previously, the cost model developed to estimate MCTS O&M cost impacts is based on MCTS' 2014 NTD submittal. In FY 2014, MCTS reported \$133.3 million in annual O&M expenditures for motor bus operations. They also reported 1,258,386 annual revenue bus-hours of service and 15,488,077 annual revenue bus-miles of service, with a maximum 334 buses in peak period service.

Key supply variables selected as the model's cost-driving inputs are the following:

- **Annual Revenue Bus-Hours:** The hours that vehicles travel while in revenue service over the entire fiscal year. Revenue bus-hours include layover and schedule recovery but exclude time for deadhead, operator training, and maintenance testing.

- **Annual Revenue Bus-Miles:** The miles that vehicles travel while in revenue service over the entire fiscal year. Revenue bus-miles include layover and schedule recovery but exclude miles for deadhead, operator training, and maintenance testing.
- **Peak Buses:** The maximum number of passenger service vehicles operated simultaneously on an average weekday. In some cases, peak buses may be used as a supply variable when the model needs to base a line item expense on overall bus system size.
- **Operating Divisions and Heavy Maintenance Facilities:** The total number of garage facilities allocated to the bus mode.

After selecting key supply variables, the next step in model development was to record MCTS' bus expenses as a series of line items. The NTD report format categorizes operating expenses within the four functional areas of vehicle operations, vehicle maintenance, non-vehicle maintenance, and general administration. For each functional area, line item expenses are further classified as salaries/wages, fringe benefits, services, materials/supplies, utilities, casualty and liability, taxes/fees, and miscellaneous.

After the list of line items was established, each was assigned a key supply variable as its most relevant cost driver. One General Administration line item expense, Casualty and Liability, was deemed to be strongly influenced by both annual revenue bus-miles and peak buses, so this expense was evenly divided between those two supply variables.

In addition to the supply variables listed above, from which line item unit costs are derived, the model also incorporates resource variables specifically to provide labor productivity ratios. NTD-reported employee work hours are included as a resource variable for estimating salaries and wages by functional area for the project alternatives. For vehicle operations, NTD does not subdivide total work hours by operator and non-operator, so the model applies their respective ratios of reported earnings to total work hours as an estimated allocation.

For all non-labor line items, the model calculates productivity using key supply variables. In addition, the model results have been inflated to 2015 dollars using a 2 percent inflation factor. While the Consumer Price Index measure was flat in Milwaukee between 2014 and 2015, the consultant team decided to use a 2 percent increase to better reflect typical cost increases incurred in the MCTS budget due to factors such as labor, fringe benefit, and health care cost escalation. CPI-U for Milwaukee County was -0.3 percent for the second half of 2015 per the Bureau of Labor Statistics. To be conservative for financial planning

purposes, a zero percent escalation factor was used for 2016. Therefore, 2015 and 2016 values are the same.

Table 3-5 presents aggregated O&M unit costs for MCTS background bus service in 2014 dollars. The unit costs in this table reflect the dollar amount the model will adjust for each added or deleted unit of a supply variable—in other words, the incremental change from the calibration. For example, for each MCTS-operated revenue bus-mile added, the model will increase its total estimate by \$2.03; for each revenue bus-hour deleted, the model will subtract \$60.60 from its estimate, and so forth.

Table 3-5: MCTS Bus O&M Unit Costs (in 2016 dollars)

Service Variable	Unit Cost
Peak Buses	\$44,214 per peak bus
Annual Revenue Bus-Hours	\$60.60 per rev. bus-hour
Annual Revenue Bus-Miles	\$2.03 per rev. bus-mile
Operating Bases	\$3,379,436 per operating base

3.2.3 BRT O&M Cost Model

This study requires estimating the cost of BRT operations for the study’s Build alternatives. Potential future BRT operating costs will be estimated with a cost model that is based on the MCTS background bus model, but includes some line items that reflect BRT-specific expenses not currently part of the MCTS bus environment.

Supply variables used in the BRT spreadsheet model for estimating annual O&M costs for operating new service and for maintaining new facilities and equipment are as follows:

- **BRT Annual Revenue Bus-Hours:** The hours that BRT vehicles travel while in revenue service over the entire fiscal year. Revenue bus-hours include layover and schedule recovery but exclude time for deadhead, operator training, and maintenance testing.
- **BRT Annual Revenue Bus-Miles:** The miles that BRT vehicles travel while in revenue service over the entire fiscal year. Revenue bus-miles include layover and schedule recovery but exclude miles for deadhead, operator training, and maintenance testing. The model distinguishes between standard and articulated bus-miles, as described below.

- **BRT Peak Buses:** The maximum number of BRT service vehicles operated simultaneously on an average weekday.
- **BRT Stations:** Bus passenger facilities in the Build alternatives that include features typically not included at standard bus stops, such as corridor-specific passenger shelters, enhanced and possible lighted signage, and Intelligent Transportation Systems (ITS) features (e.g., next bus arrival real-time information).
- **Fare Vending Machines:** The total number of this type of equipment to be installed at BRT stations.
- **Transit Signal Prioritization (TSP) Signalized Intersections:** The number of intersections in the study corridor that are anticipated to provide TSP for BRT service.
- **Exclusive Lane Miles:** The number of directional lane miles that will be dedicated for BRT operations, reflecting new pavement that needs to be maintained.

The BRT model carries over line items from the MCTS baseline bus model for vehicle operations, vehicle maintenance, and general administration. Should articulated buses be proposed, a 25 percent adjustment has been made to account for select unit costs that are likely to be higher for articulated vehicles compared to standard-sized buses. Line items factored up for articulated buses are:

- Vehicle operations consumables (fuel/lube, tires/tubes)
- Vehicle maintenance labor costs and repair/maintenance supplies

This assumption is consistent with other planning studies for agencies that operate articulated buses.

BRT service in this Project's Build alternatives is anticipated to include unique features that will result in new O&M costs that are not reflected in the MCTS current bus expenses. These BRT-specific O&M expenses are modeled as follows:

- **BRT Security Enforcement:** Additional security enforcement is assumed for BRT operations beyond what is provided for background bus service. A rate of one work hour for every eight revenue bus-hours was assumed for BRT security enforcement. An average of 1,800 work hours for every full-time employee was assumed. Annual average wages and fringe benefits were assumed to be approximately \$80,000 for every full-time employee. This works out to a unit cost of approximately \$5.49 per revenue-hour for BRT security enforcement. It is important to note that it has been assumed riders will continue to utilize M-Cards for fare payment on buses, and that no additional personnel will be needed for fare enforcement.

- **BRT Stop Maintenance:** It is assumed that additional MCTS staff or contracted services will be required annually to pay for periodic cleaning and maintenance of each BRT stop. A unit cost of \$1,975 per BRT station platform has been used, which is comparable to unit costs used in other BRT studies. It is anticipated that the BRT stops in the East-West Corridor will be curb lane or center median stops without extensive furnishings and with moderate passenger activity.
- **Fare Equipment Maintenance:** Fare collection O&M could include the maintenance of vending machines and validators at BRT stations. For BRT projects in Nashville and Minneapolis, transit agencies provided cost data to consultant staff that suggested a range of \$3,000 to \$10,000 in annual maintenance costs for each machine to stock, clean, and repair them. The BRT model for this project uses the average of this range, inflated to be more representative of current year dollars (\$8,100 per fare vending machine and validator). One ticket vending machine and one validator has been assumed for each station platform.
- **ITS Signage Maintenance:** Planning-level unit costs for ITS have ranged from \$2,600 to \$4,500 per directional stop in other BRT studies. For purposes of this project, an annual unit cost of \$2,850 per directional stop is proposed (the lower cost from other studies, inflated). Real-time informational signage is assumed at all proposed BRT stations.
- **Surface Park-and-Ride Maintenance:** Planning-level maintenance costs used in recent BRT projects in Minneapolis have been \$70 per surface space.
- **TSP Maintenance:** Project Build alternatives may assume TSP at selected intersections in the study corridor. A typical unit cost for ongoing TSP maintenance in other BRT studies has been \$2,850 per intersection.
- **Exclusive Lane Mile Maintenance:** Alternatives with exclusive lanes may require additional lane maintenance. At this time, alternatives are not assuming additional lane miles. Rather, any exclusive lanes will likely reflect use of an existing traffic lane or curbside parking. A unit cost of \$7,360 per lane mile has been assumed for new lane mile maintenance, based on data provided in the *21st Annual Report on the Performance of Highway Systems (1984-202)*, Reason Foundation, September 2014.

Table 3-6 presents the Project’s BRT O&M cost model in FY 2016 dollars.

Table 3-6: BRT O&M Unit Costs (in 2016 dollars)

Service Variable	Unit Cost
Peak Buses	\$43,347 per peak bus
Annual Revenue Bus-Hours	\$64.90 per rev. bus-hour

Service Variable	Unit Cost
Annual Revenue Bus-Miles – Standard	\$1.99 per rev. bus-mile
Annual Revenue Bus-Miles – Articulated	\$2.49 per rev. bus-mile
BRT Station Platforms	\$4,825 per station platform
Fare Vending Machines/Validators	\$8,100 per station platform
BRT Park-Ride Surface Spaces	\$70.00 per space
TSP Signalized Intersections	\$2,850 per signal
Exclusive Guideway Lane Miles	\$7,360 per lane mile

3.2.4 Summary of Results

Service requirements have been applied to the O&M unit costs presented in Table 3-7. Table 3-7 presents resulting O&M cost estimates. BRT O&M costs have been prepared for all three alternatives and for two scenarios – without and with dedicated lanes. At this time, no O&M costs for exclusive lane miles have been assumed for the dedicated lanes scenarios since no new pavement is anticipated to be added. Maintenance of a 150 space parking lot is assumed at the Bluemound/95th Street Station. Articulated buses have not been assumed for the opening year, but may be needed in the future based on forecasted ridership growth.

Table 3-7: Incremental O&M Cost Estimates (in 2016 dollars)

Mode	Key Supply Variable	Unit Cost (in \$2015)	Incremental Change in Corridor Transit Operating Statistics and Costs					
			TSP, No Dedicated Lanes			TSP, With Dedicated Lanes		
			Wisconsin Ave.	Wells St.	Hybrid	Wisconsin Ave.	Wells St.	Hybrid
BUS								
	Annual Revenue Bus-Hours	\$60.60	-17,494	-17,494	-17,494	-17,494	-17,494	-17,494
	Annual Revenue Bus-Miles	\$2.03	-276,831	-276,831	-276,831	-276,831	-276,831	-276,831
	Peak Buses	\$44,214	-5	-5	-5	-5	-5	-5
	Op. Divisions & Heavy Maint. Facilities	\$3,379,436	0	0	0	0	0	0
Total Incremental Bus Costs			(\$1,844,000)	(\$1,844,000)	(\$1,844,000)	(\$1,844,000)	(\$1,844,000)	(\$1,844,000)
BUS RAPID TRANSIT								
	Articulated Buses (Y/N)		N	N	N	N	N	N
	BRT Annual Revenue Bus-Hours	\$66.20	54,900	54,900	54,900	50,000	50,000	50,000
	BRT Annual Revenue Bus-Miles - Standard	\$2.03	586,700	607,300	597,600	586,700	607,300	597,600
	BRT Annual Revenue Bus-Miles - Articulated	\$2.54	0	0	0	0	0	0
	BRT Peak Buses	\$44,214	10	10	10	9	9	9
	BRT Station Platforms	\$4,922	36	38	36	36	38	36
	Fare Vending Machines/Validators	\$8,262	36	38	36	36	38	36
	BRT Park-Ride Surface Spaces	\$71.40	150	150	150	150	150	150
	TSP Signalized Intersections	\$2,907	53	58	63	53	58	63
	Exclusive Guideway Lane Miles	\$7,507	0	0	0	0	0	0
Total BRT O&M Costs			\$5,908,500	\$5,991,300	\$5,959,800	\$5,540,000	\$5,622,700	\$5,591,200
TOTAL INCREMENTAL O&M COSTS			\$4,064,500	\$4,147,300	\$4,115,800	\$3,696,000	\$3,778,700	\$3,747,200

As noted in Table 3-7, BRT O&M costs are in the general range of \$5.9 to \$6.0 million for scenarios without dedicated lanes and \$5.5 to \$5.6 million for scenarios with dedicated lanes. All alternatives are anticipated to benefit from \$1.8 million in savings in background bus service changes.

The summary results are a total incremental O&M cost estimate of approximately \$4.1 million for alternatives without dedicated lanes and \$3.7 million for scenarios with dedicated lanes. The dedicated lane alternatives realize a cost savings by operating the BRT with a shorter cycle time, which reduces the number of required revenue hours.

The FY 2016 bus operating cost was \$148.3 million. The incremental costs noted previously represent increases of 2.7 percent and 2.5 percent for without/with dedicated lanes, respectively.

Note that these cost estimates will likely change as the project advances and more information is known regarding facility characteristics (e.g., number of TSP intersections, number of exclusive lane-miles, number of station platforms, etc.).

3.3 Reasonably Good Financial Condition

This criterion relies on Milwaukee County's audited financial statements and Single Audit Reports (SARs) for the past three years. The complete Comprehensive Annual Financial Reports (CAFRs) and SARs for fiscal years 2011, 2012, 2013, and 2014 are available on the county's website at <http://county.milwaukee.gov/CountyComptroller>. Note that the 2011 statements are necessary for comparison purposes. Only the relevant sections of those reports are included in this Financial Plan's documentation.

3.3.1 Positive Cash Flow and Reasonable Current Ratio

Table 3-8 summarizes the county's government-wide net position at the end of each of the referenced fiscal years.

Table 3-8: Audited Financial Statements (CAFRs) (amounts in \$000)

CAFR for Years Ending 12/31 ^a	2011	Analysis Period		
		2012	2013	2014
Cash	277,796	292,578	282,244	315,497
Cash - Restricted	82,309	75,235	150,654	124,088
Total Cash	360,105	367,813	432,898	439,585
Other Current Assets	427,240	402,721	425,817	413,581
Total Current Assets	787,345	770,534	858,715	853,166
Non-Current Assets	1,503,012	1,518,432	1,566,212	1,635,832
Deferred Outflows			18,217	15,998
Total Assets	2,290,357	2,288,966	2,443,144	2,504,996
Current Liabilities	602,152	591,732	313,068	288,175
Non-Current Liabilities	1,243,028	1,207,772	1,244,415	1,224,899
Deferred Inflows			290,575	293,478
Total Liabilities	1,845,360	1,799,504	1,848,058	1,806,552
Net Position	444,997	489,462	595,086	698,444
Total Liabilities and Net Position	2,290,357	2,288,966	2,443,144	2,504,996
Increase in Net Position	69,995	44,465	105,624	103,358
Increase in Cash		7,708	65,085	6,687
Working Capital Ratio		1.30	2.74	2.96

^a 2011, 2012, 2013, and 2014 CAFRs as indicated.

The increase in cash is the year-to-year change in cash. In each of the years, cash increased from the prior year, which demonstrates positive cash flow in each of the years.

Working capital ratio is current assets divided by current liabilities. As a point of reference, the Small Starts Local Financial Commitment Rating criteria uses a working capital ratio exceeding 1.20 as a guideline for a Medium rating.

3.3.2 No Material Findings

SARs⁵ for the years ending December 31, 2012, 2013, and 2014 show that there were no material findings with respect to any federally-funded transit programs in any year. There was one deficiency noted in the 2012 SAR, finding 2012-5, regarding the preparation of financial statements due to lack of staffing and relevant training directed to the County’s Office of Comptroller. Said deficiency was subsequently cleared in the following year.

3.4 Bond Ratings

Milwaukee County’s most recent bond issuance was in November 2015. The bonds were issued in two concurrent transactions, one included the 2015 Series A and B bonds, the second included the 2015 Series C and D bonds. Both transactions were rated by Moody’s, Standard & Poors and Fitch as follows:

<u>Rating Agency⁶</u>	<u>Rating</u>
Moody’s	Aa2
S&P	AA
Fitch	AA+

As a point of reference, the Small Starts Local Financial Commitment Rating criteria uses bond ratings from Moody’s at A3 and S&P/Fitch at A as guidance for a Medium rating.

⁵ Respective year’s Single Audit Report.

⁶ Respective agency’s rating letter dated November 2015.

4. RATING REQUEST

Milwaukee County has demonstrated that its financial condition meets the requirements for the highly simplified financial evaluation. As described in Section 3.1.2, the East-West BRT Project will be requesting a Capital Investment Grant, Small Starts funding over 50 percent. Therefore, Milwaukee County respectfully requests a Local Financial Commitment Rating of Medium.